companies' tandem or end office switches. The phrase "transport and termination," in contrast, denotes the transmission of a call from the point of interconnection to the called party. "Transport" involves carrying traffic between switches within a network, and "termination" means delivering traffic from the end office to the end user.

"Technically Feasible." GTE concurs with the FCC that technical feasibility must be assessed flexibly (¶ 56), with due consideration of the circumstances of each request. For this reason, GTE does not agree with the tentative conclusion that, just because an ILEC has offered interconnection at a point to a carrier, that carrier or any other ILEC with "similar network technology" can offer interconnection at all similar points (*see* ¶¶ 50, 57). ILECs do not all use the same equipment vendors, and therefore technology is not consistent *among* the ILECs' networks. Even equipment *within* an ILEC's network will vary from area to area, since ILECs use a variety of transmission and switching equipment from multiple vendors.[27] Going a step further, even if the equipment within or among ILEC networks were the same "brand" name and generic type of equipment (*i.e.*, all one switch type), it would be rare that the software releases deployed on each piece of equipment would be the same or that the

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[27] For example, most incumbent LECs use a combination of products from different switch manufacturers, *e.g.*, AT&T, Northern Telecom, Siemens. Each vendor's products are different; although much of the functionality is the same, there are almost always operational variations. In addition, even if the vendor is the same, the type of switch may be different. That is, some networks have many different versions or vintages of switches from the same manufacturer, such as AT&T's 1AESS, 5ESS, and 4ESS, and Northern Telecom's DMS10, DMS100, DMS200, and DMS300. GTE has more switch types than any other incumbent LEC, and the vast majority of its network switches are GTD-5 EAXs, a switch that has only limited deployment by the BOCs or other independent LECs.

equipment would be engineered with exactly the same components.[28] Moreover, ILECs use a variety of Operational Support Systems ("OSSs"), as discussed above. The fact that one ILEC has modified a provisioning or billing system to accommodate a particular type of interconnection does not mean that other ILECs have as well. The FCC therefore cannot assume that once one ILEC has provided a particular type of interconnection, any other ILEC is similarly capable. Technical feasibility must be determined on an individual basis and, in reality, depends on what particular operating area of the ILEC is affected.

With this caution in mind, GTE is confident that the vast majority of interconnection requests should not present significant issues. Most states that have addressed interconnection have determined that end offices, tandem switches, and mutually acceptable meet points are feasible interconnection locations.[29] Accordingly, the FCC should state that agreements providing for interconnection at any or all of these three points are acceptable. It should not adopt a rule requiring interconnection at these points, however, because older equipment or specific locations may lack the capability or capacity for interconnection.

Requests by new entrants for interconnection at other points would be handled most expeditiously if presented pursuant to a *bona fide* request process, as discussed above. The FCC should find that, in the context of that process, an acceptable means

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[28] Software releases impact the operations of many types of equipment, including SSPs, DACs, SONET.

[29] *See, e.g.*, CPUC D.95-12-056 (Dec. 20, 1995).

of determining whether any such requested point of interconnection is technically feasible will depend upon the following important factors:

Whether interconnection at the requested point would preserve transmission quality and reliability for each carrier's customers. Interconnection that complies with industry standards and protocols, and is accomplished through a secure physical and/or logical interconnection point, should not raise appreciable risks. Requests for non-standard interconnection, however, may require careful review to assure that reliability and quality are not adversely affected.

Whether the interconnection will utilize ILEC equipment and software that is available at the requested point. GTE anticipates that most new entrants will seek to use technology that GTE has in place at the requested point of interconnection. Where a new entrant requests technology that GTE has not deployed, GTE should be permitted to deny the request as being infeasible. Nothing in the 1996 Act or legislative history suggests that new entrants have a right to compel incumbents to expand capacity or deploy new technologies to enable interconnection. Such a rule would arbitrarily permit new entrants to dictate the ILEC's investment program.

Whether interconnection at a particular point can be provided in a manner that protects any proprietary information regarding, for example, interface characteristics. GTE does not expect that most interconnection requests (with the possible exception of some requests for non-standard Signalling System 7 (SS7) interconnection) would require disclosure of proprietary information. In cases where such disclosure is necessary and agreed-to, however, the ILEC's proprietary rights must be protected through prohibitions on use of the information outside the interconnection context,

reasonable license fees, or other means. The wholesale transfer of proprietary information without such compensation would unlawfully deprive ILECs of valuable property interests and create disincentives to innovation.

Defining Just, Reasonable, and Nondiscriminatory Interconnection (¶¶ 60-62). The FCC proposes to adopt national standards for just, reasonable, and nondiscriminatory terms of interconnection, including (1) installation, maintenance and repair of the ILEC's portion of interconnection facilities, and (2) payment of non-recurring costs associated with installation. It also seeks comments on what incentives, if any, should be put into place to encourage incumbents to provide just, reasonable, and nondiscriminatory interconnection. In particular, it suggests that a national performance standard could be adopted with liquidated damages for failure to comply.

As a threshold matter, GTE disagrees that national standards for just, reasonable, and nondiscriminatory interconnection are either warranted or appropriate. As explained in section I of these Comments, national rules regarding such matters as installation and repair intervals would necessarily ignore considerable and legitimate variations among ILECs and would produce arbitrary results when applied across the board. Such rules also would usurp the states' role in reviewing interconnection matters, contrary to the language and structure of § 252.

Because the determination of whether interconnection is being provided in a just, reasonable, and nondiscriminatory manner should be made by the states, any enforcement mechanisms or penalties should likewise be left to the states. The 1996 Act simply does not envision that the FCC will assume the role of policing interconnection throughout the country. The states are capable of performing this

function, and many of them already have rules in place. If a particular state fails to discharge its rules, then -- and only then -- is the FCC permitted to step in under § 252(e)(5). Accordingly, sound policy, comity, and the statute itself demonstrate that national interconnection standards (including enforcement mechanisms) should not be adopted.

Equal Quality (¶ 63). The *NPRM* solicits suggestions on the proper criteria for determining whether interconnection is "equal in quality." Once again, GTE believes that a national model is not needed. Instead, the FCC should hold, as it did with respect to equal access, that an acceptable outcome is for states to define equality in terms of perception by the end user.[30] Accordingly, differences that can only be measured by testing equipment, but are not apparent to the consumer of that service, should not be held to violate the 1996 Act. In addition, the FCC should not foreclose parties from agreeing to lower quality interconnection at a lower price.

Relationship to Collocation (¶¶ 64-65). The FCC tentatively concludes that it has the authority to require physical collocation, virtual collocation, meet point interconnection arrangements and any other reasonable method of interconnection. Section 251(c)(2), however, does not provide for any FCC role in specifying acceptable forms of interconnection, and different forms of interconnection will make sense in different circumstances. GTE therefore encourages the FCC to allow such arrangements as acceptable outcomes, but not to require them.[31]

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[30] *See MTS/WATS Market Structure,* 100 F.C.C.2d 860, 877 (1985).

[31] Of course, any collocation arrangement must involve just compensation to the incumbent LEC for use of its property.

C. Collocation.[32]

Definition of "Premises" (¶ 71). The FCC tentatively concludes that the "premises" where collocation should be offered include central offices, tandem switches, and "all buildings or similar structures owned or leased by the incumbent LEC that house LEC network facilities," including vaults on rights-of-way. GTE has two concerns with this definition.

First, the FCC should declare as acceptable a rule of reason that limits the definition of "premises" to the space housing the network facilities. The tentative definition of "premises" is overbroad because it could encompass administrative offices or customer service departments located in a building that also contains network facilities. Requiring collocation at such non-network space would be highly disruptive.

Second, the FCC should allow states to exclude vaults located on rights of way from the definition of "premises."[33] In the *Expanded Interconnection* proceeding, the FCC recognized that collocation at remote nodes (with the possible exception of those serving as rating points for switched transport) is infeasible because of their small size, the potential for security problems, and other reasons.[34] That conclusion is correct and should not be re-visited here. End office and tandem switches are intended to accommodate the exchange of large volumes of traffic within and between networks,

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[32] This section of GTE's Comments responds to Part II.B.2.b of the *NPRM*.

[33] Indeed, § 251(c)(6) makes it clear that states, not the FCC, are to determine when physical collocation is not practical.

[34] *Special Access Expanded Interconnection Order,* 7 FCC Rcd 7369, 7418 & n. 244 (1992).

and therefore may be used for collocation in most cases. Vaults, in contrast, cannot accommodate the wholesale exchange of traffic. These facilities normally house only some form of pair gain or concentrator device used in loop plant design.[35]

Readoption of 1992 Standards (¶ 73). The FCC asks whether it should readopt the rules governing physical and virtual collocation that were established in the *Expanded Interconnection* proceeding. GTE concurs that these rules generally work an appropriate balance between the rights of ILECs and interconnecting parties. Accordingly, if used to identify acceptable outcomes rather than to dictate behavior, they could provide useful guidance.

D. Unbundled Network Elements.[36]

The FCC tentatively concludes that § 251(d)(2) obligates it to identify network elements that ILECs should unbundle and make available to requesting carriers under § 251(c)(3). To fulfill this obligation, the FCC concludes that it should identify a minimum set of network elements (¶ 77). GTE agrees that the language of § 251(d)(2) implies a greater role for the FCC regarding unbundling of network elements than is contemplated in other areas. As discussed above in section I, however, the statute does not authorize the FCC to establish federal standards regarding such matters as provisioning and service intervals, nondiscrimination, technical performance, and terms and conditions (¶¶ 79, 89).

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[35] GTE discusses the significant operational problems of sub-loop unbundling in section III.D.3., below.

[36] This section of GTE's Comments responds to Part II.B.2.e of the *NPRM*.

1. Network Elements.

Definition. (¶ 83) The 1996 Act defines a Network Element as:

> a facility or equipment used in the provision of a telecommunications service. Such term also includes features, functions, and capabilities that are provided by means of such facilities or equipment, including subscriber numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications services. § 3(45).

The *NPRM* seeks to determine the scope of the term "network element," and asks whether individual network elements may be further disaggregated.

As an initial matter, the definition of "network element" encompasses only those data bases, signalling systems, and other features and functions that are "used in the transmission, routing, or other provision of a telecommunications service." § 3(45). ILECs employ a wide range of data bases and other facilities and capabilities. Under the definition, it is only a subset of these -- those employed in the transmission, routing, or other provision of a telecommunications service -- that may be considered "network elements." Features or functions used in providing information services and other non-telecommunications offerings, or utilized merely in conjunction with, but not directly in the provision of, a telecommunications service, are excluded from the definition.

Each additional degree of unbundling of a network element makes it less likely that access will be technically feasible. This is so because unbundling a network element generally involves proprietary interfaces, limited capacity or space for access, and greater risks to service quality and network reliability. Moreover, network elements that have been subject to further unbundling are unlikely to have the capability to be separately monitored or controlled. Therefore, access at the sub-network element level should be dealt with through negotiations, and should not be deemed feasible until

examined in the context of a specific use. Moreover, as explained below, when a network element is unbundled, there are additional costs incurred that may render use of the sub-network element economically unattractive.[37]

Distinction between facilities and services (¶ 85). The NPRM also inquires whether there is a distinction between the facilities and equipment used in providing a service and the service itself. This distinction clearly exists, and it is important because different cost standards apply to unbundled elements and resold services. Unbundled elements must be provided at rates based on cost plus a reasonable profit (§ 252(d)(1)), while the charges for resold services are set at retail rates less avoided costs (§ 252(d)(3)). These different cost standards serve two critical purposes. First, they assure that ILECs continue to receive a compensatory return when services are resold.[38] Second, they create an incentive for entrants to build facilities-based networks rather than to rely solely on resale.

To insure that these objectives are achieved, the FCC should state that new entrants may not obtain existing retail services at the cost standard for unbundled elements. For example, new entrants cannot request that individual vertical features

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[37] For example, when a third party interconnects to a network element, and especially to a sub-network element, mediation equipment and/or mediation software may be required to preserve the integrity and reliability of the network and minimize undesirable customer impacts. *See Technical Background for "Third Party" Access to "AIN Triggers,"* GTE *ex parte*, CC Docket No. 91-346, filed April 30, 1996. These costs would not be incurred by the network owner in the absence of interconnection to a separate network at that point, and the ILEC is entitled by the statute and the Constitution to recover them.

[38] As discussed in section IV.E, below, however the right to earn a compensatory return requires that rates for below-cost retail services be re-balanced. Pending re-balancing, states must be able to prohibit resale of such services.

(which are themselves retail services) be offered at prices based on the unbundled network element standard. Nor can new entrants avoid the resale cost standard simply by re-bundling unbundled network elements, such as loops and ports, into a retail service.[39] Rather, the statutory directive that new entrants be allowed to "combine such elements in order to provide" service, § 251(c)(3), must be interpreted to mean that they must use some part of their own facilities. This reading of the language reflects Congress's recognition that:

> it is unlikely that competitors will have a fully redundant network in place when they initially offer local service. . . . *Some* facilities and capabilities will likely need to be obtained from the incumbent local exchange carrier as network elements pursuant to new § 251.[40]

A contrary interpretation would undermine the distinction between resold services and unbundled elements.

2. Access to Network Elements.

Definition of Unbundled Access (¶ 86). The FCC inquires whether § 251(c)(3)'s requirement that ILECs provide "access" to network elements "on an unbundled basis" means that ILECs, for a fee, must provide requesting carriers with the ability to obtain a particular element's functionality separate from that of other functionalities or network elements, with a separate charge for each purchased network element. GTE agrees with this interpretation, as long as any such unbundling is technically feasible and assures adequate cost recovery.

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[39] *See* section V, *infra*.

[40] Conf. Rpt. at 148 (emphasis added).

Access at a Technically Feasible Point (¶ 87, 88). The *NPRM* asks that parties identify and describe each network element for which unbundled access is technically feasible. GTE urges the FCC carefully to consider the language of §§ 251(c)(3) and 251(d)(2) in determining which network elements should be made available on an unbundled basis. A close reading of the statute reveals two important points about the unbundling requirement.

First, the duty in § 251(c)(3) is to provide access only to those elements that can be unbundled *and* made available at a technically feasible point (if those additionally meet the standards of § 251(d)(2), as discussed below). That is, the "technically feasible" modifier goes to the point of interconnection. Against this background, GTE generally agrees that interconnection to network elements for which industry standards bodies have identified a standard interface is technically feasible. It is not possible to identify in advance every individual network element for which access on an unbundled basis is technically feasible, however, without first placing "technically feasible" within context. That is, feasibility must take into consideration the application (or intended use) for which the interconnector wants access.[41] The feasibility determination also

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[41] For example, assume an interconnector is provided access to a group of loops on a certain cable for the provision of services using Asymmetric Digital Subscriber Line (ADSL) technology. A different interconnector asks for access to another group of loops in the same cable to provide DS-1 services. However, if the ILEC has an analog pair gain system in place in that cable, neither the ADSL nor the DS-1 service can be provided. This would occur because neither of these services can coexist with analog pair gain systems. Therefore, even though access could be technically feasible when considered in isolation, the intended use of the access renders it technically infeasible. If the intended application is not known, then it will be virtually impossible in some situations to determine technical feasibility. Mutual negotiations, rather than mandatory regulatory fiats, allow situations like this to be recognized before service disruptions occur.

must consider a broad range of additional issues, including security, routing, billing, screening, feature interaction, operational procedures, provisioning, performance monitoring, error handling, network management, testing, and end user considerations.

In light of these issues, some network elements may be unbundled today, some could be unbundled with additional work, and unbundling of others just is not currently technically feasible.[42] Accordingly, the FCC should not attempt to identify a lengthy list of network elements for which unbundled access is technically feasible; it would be far more prudent, as discussed in section III.D.3 below, to presume that ILECs comply with § 251(c)(3) if they make available the network elements specified in the statute -- loop, port, transport, and certain signalling and data bases needed for call routing -- and address the feasibility of interconnection to other unbundled elements through good faith negotiations.

Second, if access at a particular point is technically feasible, the decision whether to make a particular network element available is governed by § 251(d)(2). That section states that, in determining what unbundled elements should be made available, the FCC must consider (A) whether access to proprietary network elements is "necessary," and (B) whether the failure to provide access to a network element "would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer." GTE submits that these are separate considerations:

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[42] To use an analogy, when the FCC ordered the industry to implement an access charge structure, it did not happen overnight. All industry participants proceeded to work together to change the nation's telecommunications systems to fit a new model. A myriad of signaling, provisioning, ordering, and billing issues were addressed and solved through a cooperative effort that consumed several years. A similar process is needed again.

subparagraph (A) sets out the standard for proprietary network elements, and subparagraph (B) for all other network elements.

This interpretation is supported by the express wording of the statute. Both (A) and (B) use the phrase "such network elements," suggesting that "such" refers to network elements for which a request has been made under § 251(c)(3), and accordingly, that the "such" in subparagraph (B) does not encompass only proprietary elements. The opposite reading -- that § 251(d)(2) applies only to proprietary network elements -- would impermissibly treat subparagraph (B) as redundant.[43] That is, if a proprietary element is "necessary," then the failure to provide it plainly would "impair" the ability of the requesting carrier to offer service.[44]

Section 251(d)(2)(A) recognizes that many elements of ILEC networks may be proprietary,[45] and sets a suitably strict standard for the FCC to consider in determining whether those elements should be unbundled. Under that standard, unless the requesting carrier simply could not provide the service it seeks to offer without access to the element, unbundling should not be required. In this regard, availability of the

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[43] *See In re Surface Mining Regulation Litigation*, 627 F.2d 1346, 1362, *quoting* 2A C.Sands, SUTHERLAND STATUTORY CONSTRUCTION § 45.12 (4th ed. 1984) ("It is, however, a fundamental princip[le] of statutory construction that `effect must be given, if possible, to every word, clause and sentence of a statute' ... so that no part will be inoperative or superfluous, void or insignificant.").

[44] Moreover, if Congress had intended § 251(d)(2) to apply only to proprietary network elements, it could plainly have said so by using the word "proprietary" in the introductory language before the subparagraphs.

[45] For example, in the AIN context, many of the software programs that create services and allow unique call handling are copyrighted. Similarly, some of the software used in conjunction with SS7 networks to minimize fraud is proprietary.

feature or function from other sources would preclude a finding of necessity. If unbundled access is in fact necessary, then the ILEC must be compensated for the use of its intellectual property.[46]

As noted above, if a requested element is not proprietary, then unbundled access may be required if the denial of access would "impair" the requesting carrier's ability to provide the desired service. Although this is a more lenient standard than the necessity showing required by § 251(d)(2)(A), it still must be given meaning. If the requesting carrier can reasonably provide the element itself, or obtain it from another source, then unbundling should not be mandated.

Economic Feasibility and Responsibility for Payment (¶ 88). The FCC inquires as to the significance of the fact that economic reasonableness is not an explicit part of the unbundling standard, and also asks whether carriers requesting unbundling must bear the cost. The legislative history makes clear that the requesting party bears the full cost of unbundling:

> During the Committee's consideration of the bill, the Committee deleted a requirement that unbundling be done on an "economically reasonable" basis out of concern that this requirement could result in certain unbundled services, elements, features, functions, and capabilities not being made available. *The Committee clarified, however . . . that the beneficiary of unbundling must pay its cost.*

H.R. Rep. No. 104-204, 104th Cong., 1st Sess. 71 (emphasis added).[47] This is sound policy: forcing the requesting carrier to bear the costs of unbundling should help assure that requests are made in good faith.

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[46] This assumes the ILEC is permitted to disclose the intellectual property. As discussed below, manufacturers and software developers routinely grant ILECs only limited rights to use proprietary software.

This policy is particularly important in the unbundling context because many requests are likely to necessitate special handling. Unbundled elements are not services. Consequently, service ordering, installation, and billing systems will need to be modified or augmented to accommodate unbundling requests. For example, unbundling requires modifications to the circuit record-keeping system (to associate a CLEC circuit number and/or collocated equipment location) and the automated work assignment system associated with repair (to include additional information regarding CLEC connection locations and circuit identification information).[48] Unbundling also necessitates new processes for uniform ordering of each element, testing, billing, and other operations.

3. Specific Unbundling Proposals.

Local Loops (¶¶ 94-97). The FCC tentatively concludes that the unbundling of local loops is technically feasible, and asks whether it should prescribe a set of minimum requirements for unbundling and provisioning loops, building upon the

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[47] *See also* Conf. Rpt. at 118 (in discussing § 251 of S. 652, on which the final 251 requirements are largely based, the Senate explained that "[t]he negotiation process established by this section is intended to resolve questions of economic reasonableness with respect to the interconnection requirements.").

[48] GTE has established a single national contact center to permit efficient, consistent, and timely interaction between GTE and local service competitors that utilize resold and unbundled services. The 1996 expenses for the new contact center and all associated systems modifications needed to accommodate resale and unbundling are estimated to be $35 million. GTE emphasizes that this estimate is for incremental costs only, and does not contemplate sub-loop unbundling. That is, it includes only costs that are above the normal activities associated with interaction with customers that do not choose to move to service provided by a CLEC. Thus, these costs are being incurred solely to comply with the 1996 Act's unbundling requirements for the benefit of new entrants -- they provide no value to GTE or its customers.

progress of preexisting state initiatives. GTE agrees that local loops generally can be unbundled from a packaged local service offering. However, there is no evident need for FCC intervention. Several states are already addressing such matters, and, as the *NPRM* acknowledges, there are many "complex and resource intensive issues" involved. Moreover, because several carriers are providing unbundled loops pursuant to state requirements (n. 131), FCC action is not necessary to assure progress by the states.

The FCC should take no action with respect to sub-loop unbundling (¶ 97).[49] As an initial matter, Congress gave no indication that it intended to require ILECs to break apart their loops into smaller components. To the contrary, Congress only required unbundling of entire loops. The Conference Report, for example, states that the term "network elements" is meant to include "local loops,"[50] and the "competitive checklist" in § 271 requires only that "local loop transmission from the central office to the customer's premises" be unbundled from local switching or other services" (§ 271(c)(2)(B)(iv)). There is good reason for this restraint: as Attachment 1 to these

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[49] There is no state in which GTE has been required to provide sub-loop elements as a general offering. The *NPRM* at n.135 appears to state that the Hawaii Public Utilities Commission has ordered sub-loop unbundling. This is not the case. The HPUC only required GTE to provide: (i) cost data for loop feeder, distribution and concentration, to the extent that it was possible to identify such costs; and (ii) certain other information to aid the HPUC in its development of rules and orders. The referenced HPUC order did not include a requirement for GTE either to propose a cost recovery method/proposal, or to file a tariff for unbundled loop elements for approval by the HPUC.

[50] Conf. Rpt. at 116.

comments explains, unbundling a local loop into feeder and distribution components is not practical or feasible to accomplish through a national mandate.[51]

As explained above, a critical factor in determining the technical feasibility of providing any network element on an unbundled basis is the ability to control its use through network operating systems, and efficiently to manage and maintain it on a day-to-day basis. ILEC operational support systems are designed to operate and manage a complete loop (the link from a central office to an end user customer premises). ILECs view "feeder" and "distribution" as integral components of an entire service, not as discrete or separable elements.

There is no universally recognized component of a local loop that could be provided in compliance with a national unbundling rule, as contemplated by the *NPRM*. Indeed, there is no industry standard governing which combinations of network elements must be or should be used to create a local loop. As described in Attachment 1, there are literally dozens of different loop provisioning configurations, each with a distinct combination of network elements. Any proposed sub-loop unbundling must therefore be addressed on a case-by-case basis.

In some cases, an ILEC may have a defined point of demarcation between "feeder" and "distribution."[52] For example, in some locations, a cross-connect box is

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[51] Any proposal that would envision a new entrant using only some "middle" portion of an ILEC's local loop (that is, further disaggregating feeder or distribution components, if any) would raise insuperable administrative and operational issues.

used as the demarcation point between plant providing "feeder" and that used for "distribution" to customer premises. In those cases, the "feeder" component could be separately unbundled and managed, but only after modifications to administrative and operating systems had been designed and implemented. However, it is not technically feasible to provide a "distribution" element, because that element would be severed from the ILEC's network. The ILEC would have no idea what services the new entrant would attempt to provide over the "distribution" element and whether those services would conflict with services provided by the ILEC or a third carrier. Nor would the ILEC have any practical method to maintain or repair the facilities.

Moreover, the costly modifications needed to allow an "offering" of "feeder" elements would add no utility or value to the ILEC's provision of service to end user customers. Such modifications must therefore be driven by a clear indication of demand for a sub-loop service by parties that are willing to pay a price that compensates the ILEC for the needed work, rather than through a build-it-and-see-if-anyone-buys regulatory mandate. Such an indication of need can best be expressed and met through the voluntary negotiation process, as stipulated by the 1996 Act.

Further, a single national standard for sub-loop unbundling could effectively require that all existing loops not fitting the chosen configuration be reengineered and reconfigured -- all because of the possibility that a new entrant eventually might desire

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[52] There are also many cases, particularly older loop networks and/or mature locations with little or no growth, where a cross-connect box that provides such a point of demarcation is not used. Rather, the loop network is designed with the "feeder" cable pairs appearing in multiple locations so that the feeder also provides the "distribution" function.

to purchase such a sub-loop component. However, there will be numerous instances where either a sub-loop or even a complete loop cannot be used by an interconnector to provide a particular service to an end user. For example, if an analog pair gain device is in use in a cable, then some digital transmission services, such as ISDN, cannot be provided in that same cable sheath.[53] Or, it may not be possible to use a loop or sub-loop for high capacity services, because the physical separation between cable pairs within the cable sheath may be too little, the cable gauge too small, or loading coils may be present. Finally, some types of digital loop concentrator (pair gain) devices cannot support various "normal" loop services, such as private line service, and others cannot support the use of certain switch features, such as Caller ID service.

As the foregoing discussion demonstrates, the viability of an unbundled "feeder" sub-loop element must be considered in response to individual requests. Given that the 1996 Act requires that all reasonable costs be recovered from the cost-causer through the prices for unbundled elements, GTE expects that the actual demand for unbundled sub-loop elements will be extremely limited. In terms of the statute, the expense of unbundled access to sub-loop elements likely will be high enough, in many cases, that denial of access would not "impair" the requesting party's ability to provide service because it could self-provision the element at a lower cost.[54] Accordingly, a

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[53] *See also* note 41, *supra*.

[54] When challenging ILEC cost recovery, CLECs often contend that new technology dramatically lowers the costs of local loops. *See, e.g.,* Hatfield Associates, Inc., *A Model for Determining the Cost of Universal Service in Pennsylvania,* Pennsylvania Public Utility Commission Docket No. L-00950102 (filed July 17, 1995).

general FCC determination that access to unbundled sub-loops should be required is both untenable and unnecessary.

Local Switching (¶¶ 98-102). The FCC tentatively concludes that ILECs should provide unbundled local switching capability as a network element, and requests comments on whether switching should encompass all capacities and functions of a switch, or whether individual functions should themselves be considered network elements subject to unbundling. The FCC also asks whether tandem switching should be unbundled.

GTE supports usage-sensitive, unbundled switching based on the port approach.[55] This model allows new entrants to obtain the key elements needed to compete, including local switching, the capability to route calls from the line side to the trunk side (which, in turn, encompasses switched access, toll switching, and access to 911 and directory services), and access to vertical features.[56] If new entrants desire additional switch elements -- as opposed to switch-based services such as CLASS features, which must be resold rather than unbundled -- they can request them pursuant to the good faith request process, and GTE will provide them if technically feasible.

The alternative "local switching platform" (LSP) model (¶ 100) should not be endorsed. Contrary to the description in the *NPRM*, LSP is not an "approach to

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[55] Consistent with the statute, the FCC should allow parties to determine through negotiations what types of ports should be offered (*e.g.*, 2 vs. 4-wire, ISDN, DS1).

[56] Requesting parties can then purchase vertical features for resale at a discounted rate.

unbundling the local switch." Rather, it is a means of permitting new entrants to lease a portion of the whole switch, instead of reselling local switching services or obtaining unbundled switching functions. Accordingly, LSP cannot be considered unbundling within the meaning of § 251(c)(3); it is simply another effort to avoid the resale cost standard by erroneously characterizing a package of switching services as a network element.

In addition, the LSP model eliminates any incentive for the ILEC to modernize its infrastructure through implementation of Advanced Intelligent Network (AIN), asynchronous transfer mode (ATM), or enhancements to CLASS services. Because the LSP approach provides all switch functions to the new entrant at a discounted, flat rate, the ILEC would incur additional costs to implement new capabilities, but would not enjoy additional revenues.[57]

Local Transport and Special Access (¶¶ 104-106). The FCC proposes to require ILECs to provide access to unbundled transport facilities corresponding to the current interstate transport and special access rate elements. GTE concurs that the existing *Expanded Interconnection* rules satisfy the 1996 Act's requirements. The FCC must vigilantly assure, however, that IXCs do not use these elements to avoid access charges.

Data Bases and Signaling Systems (¶¶ 107-114). The FCC tentatively concludes that it should require ILECs to unbundle their signaling systems and data

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[57] GTE also notes that the LSP model raises difficult technical issues regarding such matters as testing and deployment of new services.

bases,[58] asks commentors to identify the points at which carriers interconnect with LEC SS7 networks today, and inquires about the technical feasibility of establishing other points of interconnection and unbundled signaling and data base functions.[59]

Interconnection today occurs at the Signal Transfer Point ("STP"), which was designed to be the entry point to an SS7 network and to provide access to all SS7 functions. The STP is the only technically feasible access point, because it alone directs SS7 message flow and provides the necessary mediation functions, *e.g.*, prevents passage of inexecutable or dangerous messages to the Service Control Points ("SCPs"), rejects inconsistent messages regarding the same end user, and prevents unauthorized access to proprietary information. Neither the SCP nor any

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[58] The FCC, however, does not distinguish between in-band and out-of-band signaling systems. Unbundling of in-band signaling systems, such as multifrequency and dual-tone multifrequency, is not technically possible. Therefore, GTE will address only out-of-band signaling systems, specifically those commonly referred to as SS7. Data base access also has significant variations. These comments will address only data bases defined by the SS7 network architectures and protocols.

[59] The *NPRM* (at ¶ 108) also suggests that the "three primary functions" of SS7 networks are call setup, access to remote databases, and CLASS features. GTE urges the FCC to recognize that the SS7 network does not actually perform the referenced functions. Rather, SS7 is an enabler; that is, it carries standard messages that allow SS7-equipped switch and other network elements to perform these functions. Call setup is established from SS7-equipped switch to SS7-equipped switch -- the SS7 network only carries the messages and responses necessary for the SS7-equipped switch to perform this function. Likewise, data base access uses the SS7 network to direct messages and responses to and from the SS7 node that has access to the data base. The role of the SS7 network as an enabler must be clearly understood, because the actual functions referenced in the *NPRM* take place elsewhere in the network.

other point in the SS7 network can perform these functions.[60] In addition, the SCP is not technically capable of routing SS7 messages to multiple STP pairs. Access to the SCP and its associated databases is technically feasible only through the STP pair associated with that SCP, whether the SCP is owned by the ILEC or another entity.

Unbundled access to GTE's 800 and LIDB data bases is provided to other carriers today. This access requires interconnection to a GTE SS7 STP, using either GTE-provided links or links constructed by another provider. Unbundling direct data base access from SS7 interconnection raises network reliability issues, including the lack of industry standards for any other type of direct access to the data bases. Standard interfaces exist for STP interconnection, but not for direct SCP interconnection. As the FCC is aware, interconnection to SCPs is a highly controversial issue at this time. Until appropriate mediation techniques and the associated software and hardware are developed to safeguard the network, access to data bases should remain through the STP.

GTE provides unbundled SS7 interconnection to IXCs under tariffed terms and conditions approved by the FCC. Interconnection to new entrants and other ILECs is provided under contract terms and conditions identical to those offered under the tariff. Moreover, the FCC (at ¶ 110) acknowledges that there are competitive SS7 signaling providers for call setup and other functions performed by the LECs' signaling systems

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[60] The FCC has acknowledged that "STPs perform important network screening functions," which should not be "decentralized" and performed at every switch. *Expanded Interconnection with Local Telephone Company Facilities,* 9 FCC Rcd 2718, 2725 (1994).

and databases.[61] Accordingly, even if unbundled access to SS7 elements were technically feasible, which it is not, such access is not necessary under § 251(d)(2)(A) (to the extent proprietary) and denial of such access would not impair the provision of competitive services under § 251(d)(2)(B) (to the extent not proprietary).

Advanced Call Processing Features (¶¶ 111-112). The FCC asks whether ILECs should unbundle advanced call processing features, such as single number service, and whether the software building blocks used by ILECs to create call processing service can be unbundled. The answer in both cases is *no*.

The Commission must recognize that the call processing features noted in the *NPRM* are services, not network elements, and therefore must be made available for resale rather than unbundled. In this regard, SS7-based services (such as DB800 and CLASS), where offered, will be or already are made available for resale. Similarly, single number service or other AIN-based services also will be available for resale, when offered, provided the appropriate signaling protocols are used. The underlying software building blocks, however, are proprietary to the manufacturer of the equipment and/or developer of the software, and those entities maintain their intellectual property rights by granting only limited rights to the purchaser for the use of the software.

Advanced Intelligent Network (¶¶ 113-114). The FCC inquires whether mandating the unbundling of signaling systems and databases would be sufficient to meet the objectives of the AIN proceeding, or whether it should order unbundled access

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[61] These competitors include Independent Telecommunications Network ("ITN"), Southern New England Telephone ("SNET"), and GTE Intelligent Network Services ("GTEINS").

to AIN elements under § 201 even if such access is not required by § 251. The FCC should not require unbundled access under any section of the 1996 Act. The record in CC Docket No. 91-346 contains persuasive evidence that, other than access to the Service Management System ("SMS"), access to AIN network elements is neither technically nor operationally feasible at this time.[62]

GTE is a participant in the *LEC Proposal for an Industry IN Project ("Industry IN Project")*,[63] which seeks to identify and resolve the technical and operational issues associated with unbundling the AIN. It is premature for the FCC to order unbundled access to AIN elements until the unresolved issues (*e.g.*, appropriate mediation techniques and feature interaction management), which bear directly on the integrity and reliability of the nation's telecommunications network, have been satisfactorily addressed and resolved. In the interim, parties can access the service creation capabilities of AIN through the SMSs of those ILECs that have deployed AIN technology, to the degree that such an offering is possible.

Customer Proprietary Network Information (CPNI) (¶ 115). The FCC asks whether incumbent providers should be prohibited from accessing the CPNI of an interconnecting carrier in order to market services to the interconnecting carrier's customers. The largest Tier 1 ILECs already are subject to similar "unhooking" rules

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[62] As GTE recently explained in an *ex parte* in CC Docket No. 91-346 (*see* note 37, *supra*), unmediated access could allow conflicts between AIN feature interactions that would create major service disruptions, including failure to complete calls to 911.

[63] *See* Public Notice DA 95-1456 (released June 28, 1995).